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PROJECT CHECO REPORT
(Contemporary Historical Evaluation of Combat Operations)

LUCKY TIGER

COMBAT OPERATIONS

15 June 1967

HQ PACAF
Directorate, Tactical Evaluation
CHECO Division

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S.E. Asia Team

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Edward C. Burtenshaw

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FOREWORD

The following Special report, "Lucky Tiger, Combat Operations" depicts the 606th ACS flying A-26 and T-28 aircraft in the BARREL ROLL and STEEL TIGER areas of Laos to interdict enemy lines of communication leading into South Vietnam. They also supported Royal Lao troops engaged with enemy ground forces. The results of these operations are of significant value in evaluating the effectiveness of this type of airpower in the Southeast Asia conflict.

A previous document, "Lucky Tiger, SAW Operations," published 31 May 67, discussed the 606th ACS corollary responsibilities of providing training for the Royal Thai Air Force and establishing Civic Action Programs with Royal Thai Government agencies.

CHAPTER I

BIG EAGLE OPERATIONS OVER LAOS

Prior to December 1966, the only direct involvement the Lucky Tiger Squadron had with air operations in Laos was through the Waterpump detachment which trained and supported the Royal Laotian Air Force (RLAF) and conducted air operations for the Air Attache and the U.S. Ambassador at Vientiane. Big Eagle A-26As of Detachment 1, 603d Air Commando Squadron (ACS), were based at Nakhon Phanom in June 1966, and were being tested as a night interdiction weapons system in Laos. These aircraft, however, were not originally a part of the Lucky Tiger package. In December, the Nakhon Phanom-based A-26As were actually assigned to the 606th ACS, and by mid-January 1967, the Lucky Tiger T-28Ds were also added to the strike force interdicting communist lines of communication (LOCs) in the BARREL ROLL and STEEL TIGER areas. 1/

Two major air campaigns were being conducted over Laos. One was the interdiction program in the BARREL ROLL and STEEL TIGER areas. The major objective was to interdict enemy LOCs leading into the Republic of Vietnam (RVN). In this program, forward air controllers (FACs) were used for visual reconnaissance (VR) and pinpoint control of strike aircraft. Destruction of enemy personnel was incidental to the main objective of blocking the movement of supplies. 2/

In the second role, USAF strike aircraft were often called upon to supplement the RLAF in the close support of Royal Lao troops who were engaged with enemy ground forces. Here, of course, the objective was to disrupt and

destroy the enemy force. Such missions were always conducted under rigid air-ground controls, and only with the assistance of FACs who visually identified and marked targets. 3/

Ambassador William H. Sullivan was the responsible U.S. official for support given to the Royal Laotian Government (RLG) in their fight against the communist-led Pathet Lao forces. In providing this support, the USAF Air Attache (USAIRA), Vientiane, and Waterpump personnel provided the Ambassador with the professional air staff for the conduct of air operations. These air resources were provided by the Deputy Commander, Seventh Air Force/ Thirteenth Air Force (7AF/13AF), in coordination with the Deputy Chief, Joint U.S. Military Advisory Group (JUSMAG). The interdiction program in Laos was directed by the 7AF Commander for the Commander, U.S. Military Assistance Command, Vietnam (COMUSMACV), in strict accordance with ground rules established by Ambassador Sullivan. 4/

Waterpump Operations

Detachment 6, 1st Air Commando Wing (ACW), which had conducted Waterpump operations since 16 March 1964, was redesignated Detachment 1, 606th ACS, and was assigned to the newly formed Lucky Tiger Squadron on 10 June 1966. The Waterpump headquarters remained at Udorn AB, Thailand. Lucky Tiger absorbed the Waterpump detachment with no change directed in the established program or any break in operational training of pilots and maintenance personnel. 5/

Waterpump's primary mission was training RLAF pilots for T-28 operations

in Laos. The detachment was additionally charged with training the RLAF maintenance personnel, maintenance of all Laotian T-28 aircraft, and out-of-country support of operations in Laos conducted by USAIRA, Vientiane, and his assigned personnel. 6/

Although the basic Waterpump mission had not changed since its inception in May 1964, the operation had expanded considerably by the time it was absorbed by the 606th ACS. Prior to this, the detachment had only six-to-eight personnel involved in Laotian operations. By March 1967, there were 54 personnel authorized at four different out-of-country stations--Vientiane, Long Tieng-(Site 98), Savannakhet and Luang Prabang. These personnel supported the air attache, operated the Air Operations Center (AOC) and represented AIRA in the Joint Operations Center, both located at Vientiane, and supported and flew T-28 strike missions in Laos. 7/

According to Lt. Col. C. E. Ramsey, outgoing Waterpump commander, the RLAF training program in March 1967, was a demanding one. He briefly described the process: 8/

> "We take a man directly out of the rice paddy and in five and one-half months we convert him into a combat qualified fighter-bomber pilot. We have had a degree of success in this. It is an accelerated program. It takes quite a bit of coordination and management to get these people 200 hours in five and one-half months with the conditions that prevail, particularly with the heavy traffic we have here at Udorn. Consequently, we operate six weeks out of every class at a detached based in our initial checkout phase."

The Waterpump detachment also maintained a pool of 20 Thai "mercenary" pilots who flew T-28s on out-of-country strikes. These pilots, too, had to

be trained in munitions delivery methods. Colonel Ramsey commented on operations by these pilots: 9/

> "When these pilots come to us, they are supposed to be qualified in the T-28. Unfortunately, this is not always true. Since I have had the detachment (10 June 66 - 7 Mar 67) we have trained 30 pilots for the pool; and, in the overall program they have trained a total of 122 pilots.
>
> "These people are rotated through the pool on a six months basis. We are charged with support of the pool. We furnish them equipment, schedule them on the request of AIRA, Vientiane, and furnish them training and life support equipment etc. that goes with a combat mission.
>
> "Every day they fly to Vientiane, and our support personnel there load the aircraft for combat. At the end of the day, these pilots return to Udorn, and we perform whatever maintenance is necessary and have them ready to go again the next day. Normally, we dispatch about twelve aircraft each morning. They fly from one to three combat sorties a day."

Waterpump personnel performed a variety of tasks in Laos. One of the more interesting tasks was that of the "Butterfly 44" FAC. Since the 606th ACS unit manning document (UMD) did not include FACs per se, enlisted combat controllers were placed on TDY to USAIRA, Vientiane. 10/

The "Butterfly 44" FAC flew with Air America pilots in a FAC aircraft and actually controlled air strikes. These personnel were jump qualified and had been trained as ground-air guides, aircraft controller, and ground communications operators. 11/

Colonel Ramsey described the intricacy of Butterfly FAC operations: 12/

"Their primary mission is to FAC for the T-28s and jet aircraft when diverted into the area. They have a very peculiar problem operating with the various types of personnel--especially the Laotian pilots and the Thai pilots. Therefore they normally fly in the back seat with an Air America pilot.

"To FAC properly they have a Thai interpreter on board, to find the lucrative targets they usually have a Laotian on board who has been out with the field commanders over the previous few days. The Laotian locates the targets. He tells the Thai. The Thai tells the American Butterfly FAC. Butterfly tells the Air America pilot where to go, and if jets are brought to the target, they FAC them in.

"It gets really involved if the Laotian T-28s come on target. The Laotian tells the Thai. The Thai tells the Butterfly FAC. Butterfly tells the Thai what to tell the Laotian to tell the T-28 pilots. What a process. Would you believe that it takes four persons to FAC these missions."

Waterpump operations were receiving considerably more attention since becoming part of the 606th ACS. The UMD was expanded to meet personnel requirements both at Udorn and in Laos. Presently operating from an Air America hangar, the detachment was scheduled to receive its own hangar with maintenance and operations facilities at Udorn in the near future. Although Air America would continue to provide the heavy maintenance support, flight line maintenance would be accomplished by the detachment. 13/

Big Eagle Evaluation

On 8 June 1966, eight A-26As (reconfigured B-26) were deployed to Nakhon Phanom from England AFB, Louisiana. These aircraft were deployed with Detachment 1, 603d ACS, under the Big Eagle program to evaluate the A-26A as a night interdiction weapons system over Laos. This strike package consisted

of 8 aircraft, 31 officers and 111 airmen, and equipment--to be deployed in a TDY status for a period of 179 days.[14/]

Headquarters, 7AF, established the concept of operations for the Big Eagle evaluation. The A-26As were initially employed in the CRICKET area of Laos to expand the 7AF night-armed reconnaissance and interdiction effort. Expedient evaluation in this role, to permit early deployment of 12 follow-up aircraft, was considered to be of prime importance to the USAF combat effort.[15/]

Initial flights were flown in daylight to provide familiarization and orientation with terrain features of assigned routes and areas. After the familiarization period, the aircraft were directed to operate at night in a single ship concept, completely blacked out, with time and direction of route coverage randomly varied to provide the maximum advantage of surprise, while denying the enemy any predictability of air activity. In conditions of adverse weather, level bombing would be accomplished utilizing the MSQ-77 network.[16/]

Headquarters, 7AF, further directed that the full weapons spectrum of the A-26A would be employed: eight .50-caliber nose guns; eight wing stations and 12 bomb bay stations; 10,000 pounds of conventional aerial munitions in all feasible configurations. Variations in tactics and ordnance would be fully exploited and evaluated to determine the most effective employment of this weapons system in the Laotian environment.[17/]

It was planned that normal tactics would be to open fire with guns and

NAKHON PHANOM AIR BASE, THAILAND
Fig. 1

rockets on an unsuspecting target from a blacked-out, low-altitude, reconnaissance posture. This would allow full advantage of the element of surprise to prevent target escape and dispersal. Interdiction aircraft could then pull up, drop flares and continue the attack. Depending on the size and nature of the target, other strike and flare aircraft operating in the area could be called in with the aircraft marking the target. All A-26 pilots were to be qualified forward air controllers (FACs), thus providing an independent search and destroy capability and also allowing their control of additional strike aircraft if required.[18/]

Big Eagle aircrews flew their first missions on 20 June 1966. In the first four days, 26 armed reconnaissance sorties were flown during daylight with O-1F CRICKET FACs from the 23d Tactical Air Support Squadron (TASS) aboard the aircraft to assist in area familiarization.[19/] During the following week, Big Eagle assumed its primary mission of night armed reconnaissance in central Laos. Thirty sorties were flown, 24 during daylight hours and six at night.[20/] Fifteen tons of bombs, 32,125 rounds of .50-caliber ammunition, and 107 flares were expended on targets during this second week of operations. One aircraft received battle damage on 26 June. On 29 June, one aircraft and crew were lost, and another aircraft received damage as a result of enemy ground fire.[21/]

Heavy and rather accurate flak was encountered by the A-26s, when five sorties were diverted into Route Package I in North Vietnam. The Big Eagle Commander, Col. D. A. Curto, contacted 7AF Bravo Team (which controlled air operations in Laos), and requested that the A-26s not be diverted into NVN.

The 7AF concurred and directed a communique to this effect to the Airborne Command Control Center (ABCCC).[22]

Meanwhile, Ambassador Sullivan approved the use of A-26s to attack targets without a FAC and to act as a FAC while operating in Laos, according to existing rules of engagement.[23] During the third week of operations, A-26 pilots assumed the role of FACs for the first time, directing a number of jet flights on targets at night. Big Eagle aircraft flew 35 armed reconnaissance sorties along enemy LOCs during this week, expending 45 tons of ordnance, 13,400 rounds of .50-caliber API, and 216 flares. The MSQ-77 ground radar controlled bombing was also successfully flown by the A-26s for the first time. The MSQ runs had to be made on close-in targets due to the limited skin-paint capability of the new site at Nakhon Phanom and the lack of X-band beacons in the aircraft.[24]

The original evaluation period was to be 45 days; however, the A-26A night missions had no sooner begun than the southwest monsoons broke. Weather resulted in the cancellation of 46 sorties during the two-week period of 29 July through 12 August.[25] A more thorough evaluation of the A-26A was in order, and on 19 August, CINCPACAF advised that the 45-day evaluation period had been extended through 31 October.[26]

The CINCPACAF also advised that A-26A assets were severely limited. This dictated a unit of 12 aircraft, plus three for attrition, thereby allowing sufficient aircraft to maintain the training base at Hurlburt, Fla., for replacement aircrews. If, by October or sooner, it was determined that

the evaluation would prove successful, CINCPACAF advised that he would recommend November deployment for follow-up forces.[27]

In early September 1966, outgoing Big Eagle Commander, Colonel Curto, recommended that the A-26A be employed in regions other than the CRICKET area, i.e., BARREL ROLL, TALLY HO, etc. He pointed out that the night-armed reconnaissance capability of the A-26A and the loiter capability could relieve other aircraft and supplement the total interdiction effort. He gave an example:[28]

> "In the CRICKET area, six A-26 sorties provided continuous coverage from approximately one and one-half hours before last light to one and one-half hours after first light. Assuming a flight of jets (two aircraft) with a loiter capability of 40 minutes, six aircraft would be required to conduct the same target coverage as one A-26. With 12 hours of darkness, 36 fighters would be required. The capability of the A-26 to provide this coverage will allow the fighter sorties to be utilized in support of other areas not covered by the A-26. Assuming further that 18 A-26 sorties were available to cover three areas similar to the CRICKET area, 118 sorties per night could be diverted to other areas."

Weather in Laos was clearing, and A-26A sorties were showing an increase. During the week ending 23 September, of the 63 operational missions scheduled, 41 armed reconnaissance and 20 Sky Spot sorties were flown. Two missions were canceled due to maintenance. There were 80.6 tons of munitions, 29,000 rounds of .50-caliber API, and 319 flares expended.[29]

A-26s Move Into CRICKET WEST

CRICKET WEST was an extension of the STEEL TIGER bomb-line in the

MAHAXAY area of Laos. This extension, in which special rules applied, was the result of a general enemy buildup in the MAHAXAY area. Intelligence sources considered the intent of this force was to secure the Route 12 area west of MAHAXAY and to initiate another attempt to take Thakhek--probably within the following three months. It was located across the river, not far from Nakhon Phanom. A steady increase in enemy strength had been noted there over the previous two months. 30/

An increased number of O-1F CRICKET resources were committed to the area. The O-1s were to provide both VR and FAC coverage and control RLAF T-28s and USAF resources. The latter were to be directed only on RLG validated targets, within the parameters of stringent rules of engagement which had been established for operations in Laos. The A-26s were called into the area in mid-September to strike targets generated by the O-1s and their responsiveness was well demonstrated. 31/

On the night of 17 September, A-26s were requested by O-1s on the scene. Within 50 minutes after receiving the initial request, the target had been validated by RLG representatives at Savannakhet. The 7AF had approved diversion and early time on target (TOT), and the first two A-26s had scrambled and were on target. Verified results of this mission from Forces Armee Royale (FAR) sources were 120 KBA, two .50-caliber guns destroyed, and 80 percent of supplies destroyed. 32/

Two A-26 sorties on 18 September were a repeat of the previous day's circumstances and results. These two target sites included ammunition and

food storage areas and troop concentrations. Seventy percent of one target was declared destroyed and 90 percent of the other.[33]

Results such as these were proving the A-26 to be an effective weapons system in the Laotian environment. Maj. Gen. Charles R. Bond, Jr.'s operations staff reported to him in September, on the effectiveness of the A-26:[34]

> "The A-26 is doing a good job in its interdiction role. Its employment has released a number of jet aircraft to other areas. Based on a 20-minute station time for the jets the figure of 30 sorties (60 jet aircraft) is equated to the coverage being provided by the A-26s. The A-26 with the Hayes dispenser is the only 'saturation' capable vehicle within 7AF."

There were certain unfavorable aspects. Retention of the A-26s would add another type aircraft to the 7AF inventory, already taxed by many various types.[35] The A-26 also had to operate in a permissive environment. With regard to the permissiveness of the Laotian environment, it was pointed out that prior to September, only four aircraft had received battle damage and one aircraft had been shot down. These occurred during the first ten days of operation during daylight missions. No battle damage had been sustained during night operations.[36]

Replacement for AC-47s

Eight AC-47s had originally been programmed for the 606th ACS to fill Ambassador Sullivan's requirement for a night interdiction weapons system in Laos; however, this deployment was being revaluated.[37] The revaluation was based on experience gained from AC-47s already employed in the Laotian environment, which had been provided from resources in South Vietnam since

December 1965.[38]

Since the beginning of the AC-47 operations in Laos, four had been lost. Two of these losses occurred on 24 December 1965 and 13 March 1966--both aircraft simply disappeared. Speculation was that the aircraft might have been flown into mountain sides; dense ground cover precluded their being spotted from the air. Of the remaining two losses, one also disappeared without trace in May 1966; the other was seen hit by ground fire in June 1966, and the last report stated it was burning.[39]

Headquarters, 7AF, did not consider the Laotian environment permissive to propeller-driven strike aircraft, especially the AC-47s. Due to the "vulnerability of the AC-47s in Laos," 7AF requested that consideration be given to diverting the ones programmed for the 606th ACS to South Vietnam, and replacing these aircraft "in Thailand with tactical aircraft more suitable to the environment."[40]

The CINCPACAF replied:[41]

> "Subject AC-47s were justified to DOD for night interdiction in Laos. Concur AC-47 more vulnerable to ground fire than some other tactical aircraft in sophisticated defense environment; however, believe weapon system can be gainfully employed in areas where heavy defensive fire does not exist. Careful fragging this weapons system will tend to decrease risk to AC-47 aircraft. Records this headquarters for period 1 February through 31 July 1966 indicate of five losses only one can be definitely attributed to ground fire out-of-country and one in-country."

Meanwhile, Ambassador Sullivan had become enthusiastic about results of the A-26s in Laos. The USAIRA, Vientiane, advised CINCPACAF on 15 October 1966,

that the A-26s were conducting night interdiction in Laos with an "excellent degree of success." He said the Ambassador desired that serious consideration be given early deployment of eight additional A-26s, to take advantage of numerous lucrative LOC targets which would be "available during hours of darkness during the dry season in Laos." [42] Ambassador Sullivan requested the A-26s be used as a replacement for the AC-47s which were not yet in place. [43]

Headquarters, 7AF, was in agreement with replacing the AC-47s; however, there was some question as to the validity of replacing them with A-26s. A few days earlier on 2 October, 7AF had requested that the Big Eagle evaluation be extended an additional 60 days. The 7AF rationale was as follows: [44]

> "Lack of enemy movement and vehicular activity during monsoon season has precluded acquisition of representative data on correlation of effort expended versus results obtained. Present test results and BDA are not indicative of A-26A capabilities and resulting data are inconclusive. Anticipate increased activity in conjunction with improved weather in next 60 days will yield sufficient data and information for decision on Big Eagle follow-on."

Ambassador Sullivan approached Adm. Ulysses G. Sharp, CINCPAC: [45]

> "In our humble judgment, A-26 aircraft being used in CRICKET are doing fine. I therefore asked AIRA to request additional eight A-26s in lieu of AC-47 aircraft. I would still prefer to see some birds on hand before letting all the birds leave the bush. Naturally, I don't want to foul up the entire Air Force system by dragging my heels irresponsibly, but a low level of rug merchandising seems in order at this stage. What are your views?"

On 22 October, CINCPAC requested authority from JCS to divert the AC-47s

to South Vietnam, with the understanding that additional A-26s would be provided for CRICKET operations. Although a detailed test evaluation was not completed, CINCPAC advised that preliminary results reflected that A-26 operations were successful, and follow-up aircraft should be deployed at the earliest possible date. The CINCPACAF changed his stand and advised CSAF that "such action would permit replacement of AC-47s with more effective night interdiction system and relocation (of) AC-47s to permissive environment where they could be used more effectively." 46/

Admiral Sharp replied to Ambassador Sullivan: 47/

> "We are currently planning to increase the number of A-26s to twelve within 30-60 days after completion of preliminary arrangements. Unless you have other objections, I will authorize General Harris to divert the eight AC-47s into SVN as he has recommended. In the interim the A-26s now on station will remain available for operations."

The Ambassador's reply: 48/

> "Welcome news from Honolulu Bazaar that rug weavers feel they can produce additional four A-26 aircraft for Operation CRICKET within next 30-60 days... With this understanding you have my concurrence in redeploying 8 AC-47 aircraft to Vietnam. We'll probably come back for an additional four A-26s when and if available assets improve."

A-26s Move into BARREL ROLL

Beginning on 1 November 1966, the Big Eagle A-26s were fragged for four sorties per night into the BARREL ROLL area. BARREL ROLL missions were flown with full fuel load as the en route time to the BRAVO and CHARLIE areas of the BARREL ROLL sector was one hour each way; to the ALPHA area the en route

time was 90 minutes each way. Average mission times were four hours and 15 minutes. Ordnance carried for the BARREL ROLL missions were two MAU-63s with 12 flares, two CBU-14s, two M-47s, six M-88s, one M-65, and one LAU-3A. 49/

In BARREL ROLL, the A-26s were linked with a closely-integrated system consisting of F-104 flights, the A-26s, A-1Es, and Meo guerrilla teams on the ground. Real time intelligence about moving trucks, active truck parks, etc. was passed to the aircraft by the Meo Road Watch Teams via VHF.

The A-26s would receive their real test in BARREL ROLL because November and December were traditionally the months in which NVN forces were resupplied, strengthened, and launched on offensive operations. Truck movements indicated that the same pattern would likely be followed. 50/ (The A-26s were also flying five sorties per evening in the STEEL TIGER area. Sky Spot drops on selected RLAF targets were made after takeoff and then to normal armed reconnaissance routes. Mission durations for these sorties were about three hours and fifteen minutes.)

The decision to utilize A-26s in the BARREL ROLL area resulted from a planning conference held at General Bond's Udorn headquarters on 25 October. The meeting concerned the enemy buildup and situation in the BARREL ROLL area. CAS representatives, members of General Bond's staff, and the Air Attache, Vientiane, urged an increase in the level of air operations in the BARREL ROLL area over the next few weeks. The plan was to hit the enemy in their bivouac areas before they dispersed to attack the friendly areas in SAM NEUA Province. They also recommended attacking the enemy vehicular

activity which was increasing in intensity.[51]

This integrated system which teamed the A-26As with ground road watch operations proved highly successful. Two of the Meo Auto-Defense De Choc (ADC) Commanders, known to their American associates by their call signs of "Tall Man" and "Red Man" were quite experienced in spotting enemy, troop, and support targets, and relaying this information to aircraft. Each officer commanded a system of Meo spotters, who were radio-equipped, and who were stationed throughout the SAM NEUA area along Routes 6 and 65 in concealed points along the roads. The spotters furnished the ADC Commanders with target locations and results of air strikes. In some cases, friendly villagers, who were members of an informant network, passed information on targets and subsequent damage assessment.[52]

These operations were so successful during early November 1966, that the A-26s had destroyed or damaged 67 trucks within one week's time--2-9 November. Additional results were one bulldozer destroyed, four antiaircraft guns destroyed, and 384 enemy troops killed, including 154 troops identified as North Vietnamese, and many enemy troops wounded.[53] All BDA was reported by the ground teams and correlated, with minor exception, with sorties reported by A-26 pilots.[54]

The following field comment was made by intelligence sources:[55]

> "The Meo Commanders reported that as of 10 November little traffic was moving along Routes 6 and 65 in their areas as a result of the successful A-26 bombings. They believed that enemy rice and ammunition supplies were low and that only about 20 trucks,

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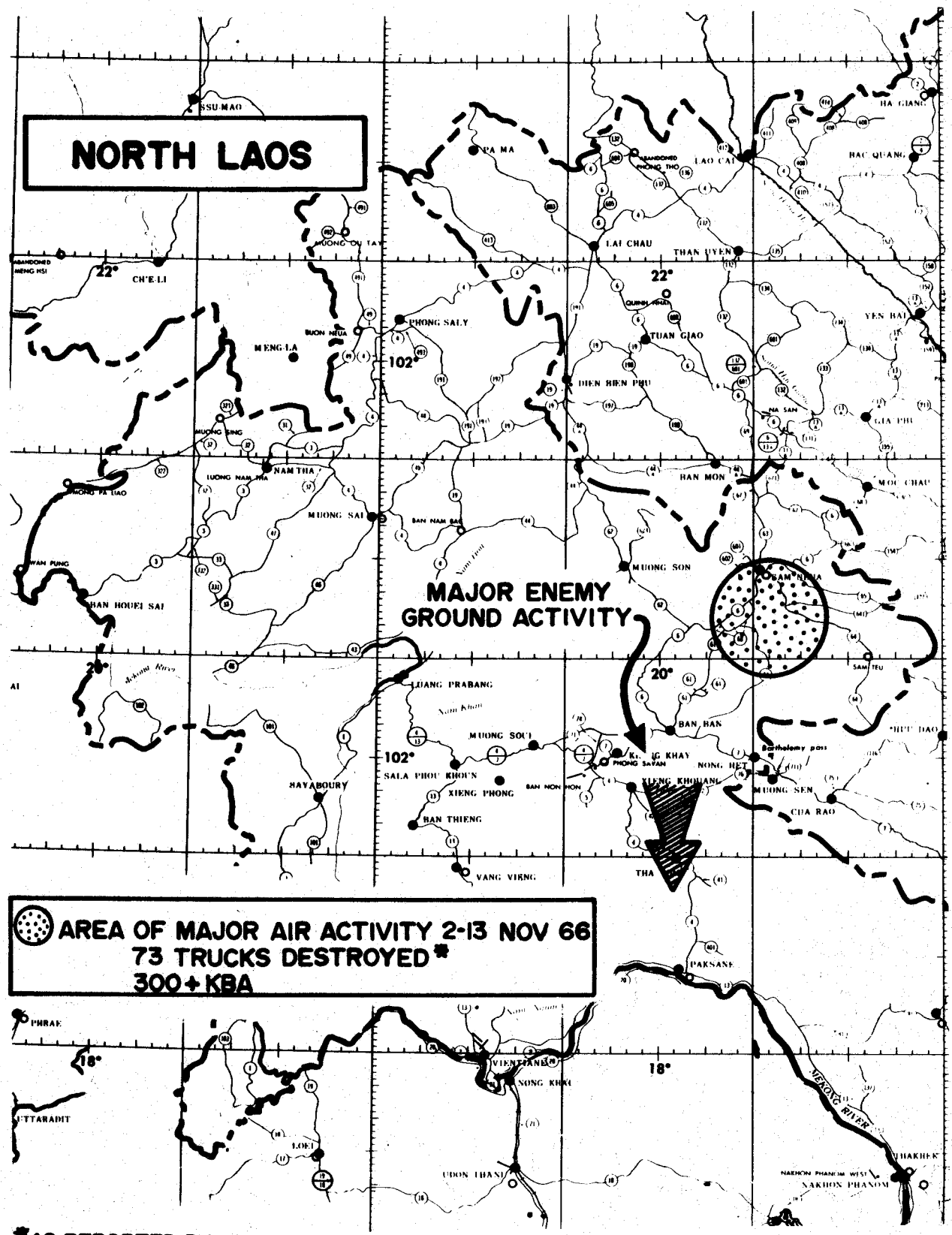

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Fig. 2

> mostly in groups of five or six, were moving in a night to resupply the enemy. These air strikes will probably deter the enemy's planned dry-season offensive."

On 26 November the A-26 sortie rate was reduced to seven per night, with four being scheduled to the STEEL TIGER area and three to the BARREL ROLL area. Adverse weather prevented accomplishment of most missions fragged into BARREL ROLL, and these were diverted into STEEL TIGER. 56/

A large convoy of trucks was spotted by an A-26A crew in the BARREL ROLL area on the night of 29 November. Capt. Billy L. Green and his navigator, 1st Lt. Robert L. Tidwell, call-sign Nimrod 32, were flying an armed reconnaissance mission, and at about 1900 hours spotted truck lights "about ten miles away." 57/ Captain Green recalled:

> "We went to the area to investigate the lights. There were 15 trucks on Route 65 heading southeast. The trucks were evenly spaced about 300 meters apart. Each truck had its headlights on. I made the first pass (strafe and CBU) in the dark and from the front to the rear. Pulled up for a flare drop and new attack. At this time "The Tall Man" called me and asked if I was making an attack. He said he had a team nearby and that there were 14.5-mm, 12.5-mm and small arms being shot at me. He also confirmed the size of the convoy and that there was an armored car with the group."

As Nimrod 32 began the attack under flares, Captain Green observed a WWII type scout car "making a run for it." "The scout car had an open top and two seats in it; four persons were in the car," Captain Green said. "They had on dark uniforms." They hit the scout car with .50-caliber API and one rack of CBU, and the car was stopped. 58/

The trucks in the convoy were ten "wheelers," olive-drab in color, and had canvas tops. At the end of the convoy was the armored car with twin-mounted guns. Nimrod 32 pressed the attack against the remainder of the column with .50-caliber API and CBU. Six to eight 14.5-mm guns were firing at him from the southwest side of the road. "I came around and tried for the armored car with the rockets and guns," Captain Green said. "One pod of rockets were right on the car and the second pod about 40 feet long." He then pulled up for a dive bomb run with six 250-pound GP bombs, distributing them the length of the convoy. 59/

Out of ordnance, Nimrod 32 called for additional aircraft, then stayed in the area and "kept the enemy busy" by making dry passes and dropping flares until the additional aircraft (Nimrod 34 and 35) arrived. He then dropped his last flare and marked the target for the other A-26s. He concluded: 60/

> "During the hour that we waited for the aircraft, we continued to receive extensive ground fire. A report from the ground team said we destroyed one scout car and three trucks. While the attack was being conducted, I was in radio contact with the RWT. They gave me the impression that the trucks were loaded with troops. He said that the people were out of the trucks and all firing their guns at me. Damage to the aircraft consisted of two holes in the elevator and one 14.5-mm in the rudder control."

Effectiveness of Big Eagle Operations

In December 1966, A-26A aircrews and support personnel began arriving PCS at Nakhon Phanom, and the detachment became officially part of the Lucky

Tiger force. The 606th ACS Commander, Col. Harry C. Aderholt, who arrived on 9 December 1966, immediately began studying ways and means of more fully exploiting the A-26A capability in Laos. He was also interested in the integration of his squadron's T-28s into the Laos' interdiction system. By January, this was accomplished, and A-26s and T-28s were operating in Laos with a great degree of success. (These operations will be covered in Chapter II.) 61/

Colonel Aderholt commented on the effectiveness of A-26 operations under the Big Eagle concept: 62/

> "From 1 November to date (24 Dec 1966), A-26A aircraft of Det 1, 603d ACS patrolled both BR and ST. Frequently aided by direct contact with road watch teams, they attacked targets of opportunity nightly. However, this small unit has been unable to provide adequate coverage over operational areas throughout the hours of darkness. Night movements have been restricted, but not to a decisive degree. RWTs and photo reconnaissance continue to confirm heavy enemy traffic on BR and ST routes. But it is important to note that these same sources reported complete stoppage of traffic for a short period of time on BR routes when four A-26A sorties per night were fragged into this area 1-12 November 1966. Intelligence reports on 13 November indicated that all traffic had stopped after less than two weeks of harassment by A-26A night armed reconnaissance."

December 1966 was a successful month for the A-26s especially in the STEEL TIGER area. Meo Road Watch Teams continued to furnish sightings in BARREL ROLL; however, this program was temporarily slowed during the celebration of the Meo New Year. Also, one of the more aggressive team leaders, "The Tall Man," was accidentally killed by his rear guard while en route to base camp. In BARREL ROLL, a total of 447 USAF sorties were flown in December,

with 31 trucks destroyed or damaged. The A-26s flew only 20 of these sorties and were credited with 27 of the 31 vehicles reported. In STEEL TIGER, there were 2,546 USAF sorties flown, with 163 damaged or destroyed trucks. The A-26s were credited with 99 of these kills, although they flew only 175 sorties.[63/]

Representative of the activity in the BARREL ROLL area was the sighting of a convoy on Route 7 near Nong Het at 2120 hours, 25 December. A strafing pass served to fix the trucks until a flareship and another A-26 arrived from STEEL TIGER. A total of four sorties accounted for 11 trucks destroyed or damaged during the next four hours, plus secondary POL fires from the area adjacent to the road.[64/]

A major difficulty experienced by the A-26s in BARREL ROLL was the lack of flareships. The limited flare capability of the A-26 required the aircraft to break off on several occasions and retire to the south while attempting to divert a Lamplighter (C-130 flareship) from STEEL TIGER.[65/]

The Tactical Evaluation Center at Headquarters, PACAF, pointed out that much of the success which had been gained by A-26A utilization was explained by "the familiarity of the aircrews with the terrain and road systems" and "the excellent intelligence developed daily by the collocated CRICKET FACs." Additionally, Lamplighter support was available, loiter time was extended by the target areas' proximity to Nakhon Phanom, and communication could be maintained for radar positioning or forwarding requests for additional attack or flare forces.[66/] Other pertinent factors included:

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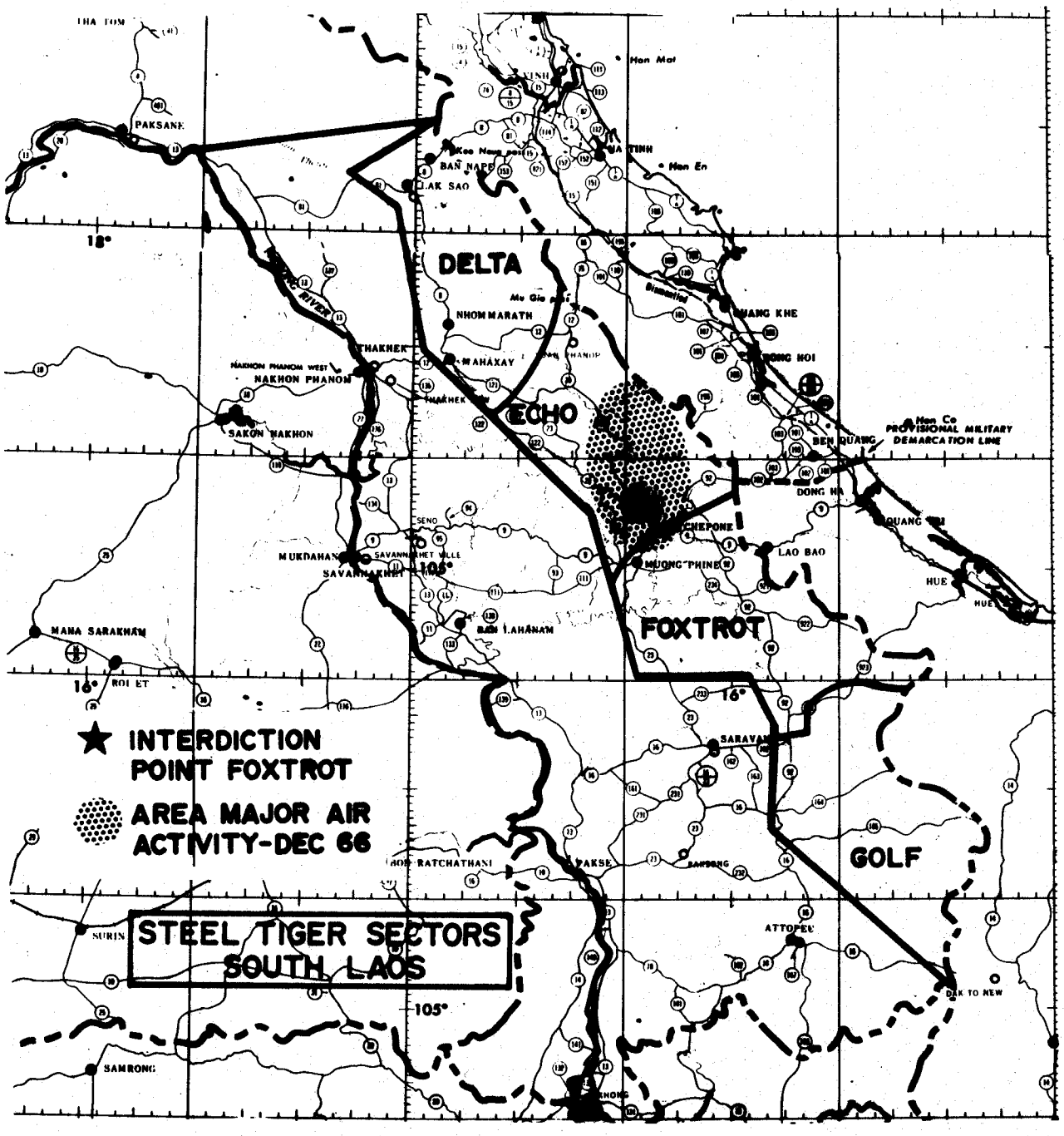

Fig. 3

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- Close coordination between Meo/Thai English speaking ground observers and A-26s in northern Laos.
- Flare capability organic to the A-26.
- Time spent over target by the A-26 is about double that of jet aircraft.
- A-26 ordnance is selected for the job; usually 12 X 120-lb. frag clusters and 4 X CBU-14 are used to stop movement; followed by repeated passes using 8 X .50-cal. guns; plus 1 X LAU-3.
- Lamplighter assistance for particularly lucrative targets.
- Low airspeed and side-by-side seating permit easier target acquisition.

Tactics developed in-theatre by the original TDY Big Eagle crews added to the effectiveness. These tactics varied from random armed reconnaissance to an especially effective and new harassment technique. This technique was explained: 67/

> "At dusk, one good road cut is made near one of the selected interdiction points. "Foxtrot" is used often, as its position between a karst ridge and the Nam Kok River requires immediate repair. Following this cut, the A-26 retires from the scene and loiters nearby at 8-10,000 feet in low cruise. The flareship then drops two USN six candle power marker flares at an equal distance on both sides of the cut. These flares burn for 45 minutes. The flareship now departs from the target area, and, as a ruse, dispenses standard MK-24 parachute flares as though accompanied by attack aircraft. Prior to burnout of the ground flares, the A-26 rolls in, blacked out, using the flares to establish the attack heading and aiming point. Backed-up trucks and road repair crews have been repeatedly surprised by this tactic. The 120-lb. frag cluster and CBU-14 appear to be the most suitable ordnance for this work; however, the necessity to carry 2 X 1000-lb. GP's for road cuts plus a LAU-32 for FAC

marking rounds results in less than optimum ordnance. When trucks are discovered, the .50-cal guns have proved to be the best weapon."

Friendly ground forces additionally favored the A-26A because of its multiple radio (SSB, VHF, FM and UHF) configuration, and its capability to carry Thai or Lao interpreters or observers. Colonel Aderholt said: "The A-26A is particularly well suited to the conduct of special operations such as aerial ambushes and other attacks utilizing friendly ground teams as FACs or spotters." He felt the one serious limitation in A-26A operations was aircraft availability. 68/

In October and November 1966, the Big Eagle Detachment had reached a daily fragged rate of ten sorties per night with only eight aircraft assigned. Due to the lack of maintenance personnel, as TDY support personnel were phased-out at termination of the test program, the sortie rate was dropped to seven per night. By the end of December 1966, the unit had only seven aircraft. 69/

Colonel Aderholt recommended that the A-26A force at Nakhon Phanom be increased, and that all A-26A assets (29 total in USAF) be transferred to Southeast Asia. His proposal included the positioning of 20 aircraft, including four attrition aircraft, related equipment, and personnel, in Nakhon Phanom. "This would increase the USAF capability to disrupt enemy LOCs and strike targets with greater efficiency than is now possible," he said.

Under this proposed plan, the remaining A-26As would be positioned at

Clark AB in the Philippines. Necessary air and ground crew personnel could be placed at Clark AB to provide a combat crew training capability in support of theater operations. Aircraft replacement and depot-level maintenance, including IRAN, could be provided at Clark. 70/

This proposal by Colonel Aderholt was conceived and developed on the following rationale: 71/

- Night interdiction of LOCs throughout both target areas had become increasingly important to the enemy due to effective USAF daylight incursions.
- Nakhon Phanom was an ideal base for locating A-26A aircraft due to its proximity to target areas, relative security, and existing or programmed facilities.
- The establishment of a 16-UE A-26A unit at Nakhon Phanom would provide an effective operation of 20 sorties each night in BARREL ROLL and STEEL TIGER. This was based on a 1.2 sortie rate per aircraft per day.
- Average sortie TOT in each area would be in excess of two hours which--in view of the A-26A ordnance capability--would provide effective denial of LOCs to the enemy throughout the hours of darkness.
- Utilizing one A-26A in BARREL ROLL and STEEL TIGER would release, in the same time period, 14 high cost, high performance jet aircraft for geographically deeper targets. This was based on the jet's TOT of twenty minutes.
- Equating the high operating cost of present day jet fighter aircraft, with comparable ordnance delivery capabilities, to the economical operating cost of the A-26A would show a substantial saving in operational costs.
- Consolidating all A-26A personnel and materiel resources in SEA would eliminate costly pipelines maintained in the Canal Zone and the United States.

- Centralizing A-26A resources in SEA would contribute greatly to effective and economical phase-out of the weapons system from the USAF inventory, when required, by having it do what it was designed to do.

Colonel Aderholt commented further on how more effective utilization of A-26A resources could be realized in consolidating this force in Southeast Asia. He said: 72/

> "Training aircrews at Clark AB, near actual combat operations, thereby permitting experience gained in combat to be more quickly incorporated into the training would be only one advantage. The training program consisting of theater indoctrination and jungle survival would be given more continuity by having it at one location.
>
> "There are several advantages in centralizing the maintenance (depot and IRAN) capability to be conducted on the entire A-26A fleet at Clark AB or at other SEA locations. This would provide additional flying hours to the fleet by having more spares and parts available on a timely basis, and having in-commission attrition aircraft close to the combat area. We could achieve a better utilization of trained A-26A maintenance personnel by the application of specialist skills on a greater number of aircraft and would have more essential AGE immediately available. This system has been proven by the B-57 operation of the 405th Ftr Bmbr Wg at Clark.
>
> "The obvious advantage is that more than doubling the number of A-26A aircraft at Nakhon Phanom would provide more effective night coverage of LOCs in enemy territory."

The fact that antiaircraft defenses in Laos were relatively ineffective against A-26As operating at night was also important. The only known antiaircraft artillery (AAA) (37-57-mm) guns in Laos, at the end of 1966, were located in and around five sites. All of these sites were well-known and were continually evaluated as they shifted. The situation was subject to change,

but thus far the A-26As had been able to deal easily with AAA in Laos. [73]

The PACAF Tactical Evaluation Center later reported on Colonel Aderholt's proposal: [74]

> "Considering all STEEL TIGER sorties, it appears that a disproportionately small number of A-26 sorties destroyed the majority of vehicles for the period December 1966 through January 1967. With the STEEL TIGER truck traffic on the increase, augmentation of the SEA A-26 fleet should receive priority consideration. USAF worldwide A-26 assets are now 29, located at such diverse spots as England AFB, SOUTHCOM, and Nakhon Phanom RTAB. The 606th ACS proposal to call in all available A-26 airframes, establish an MOB, conduct crew training, and eventually phase out the aircraft at Clark AB, PI, should be examined."

CHAPTER II

T-28D COMBAT OPERATIONS

Commitment of T-28Ds

As a follow-up to his proposal for A-26A augmentation, the 606th ACS Commander, on 4 January 1967, proposed that the Lucky Tiger T-28Ds be committed to combat operations in the STEEL TIGER area. It was further proposed that the T-28 fleet (12 aircraft authorized) be expanded to 25 aircraft along with their required air and ground crew personnel. The Commander's plan was to allow the T-28s to effectively supplement the A-26 operations.[1/]

This proposal concerned only those T-28D resources which were not committed to RTAF training. Colonel Aderholt stated that the 606th ACS could immediately generate eight combat sorties per day into STEEL TIGER with no effect whatsoever on RTAF training commitments.[2/]

The T-28D was configured with two fixed .50-caliber machine guns and six external stores stations which could carry a maximum ordnance and external fuel load of 3,500 pounds. The variety of communications with which the T-28D was equipped included: tunable UHF command, UHF homing, tunable VHF command, tunable FM command, FM homing, LF homing, TACAN/DME and IFF/SIF. This variety of equipment would support operations with GCI, MSQ, Road Watch Teams, airborne and ground FACs, and control ships in the STEEL TIGER area.[3/]

Concerning the T-28D capabilities, Colonel Aderholt said: [4]

> "The T-28D will withstand moderate battle damage through incorporate systems simplicity, self-sealing wing tanks, aircrew protective armor plate, and a highly reliable reciprocating engine. The aircraft and its systems require less logistical and personnel support than any other weapons system available in Southeast Asia. Special operations to support friendly forces can and have been conducted with a Thai or Laotian observer in the rear cockpit. The simplicity of operating the interphone/command radio system has virtually eliminated communication problems for integrated aircrews during ground support operations. With a mean combat range of 75 nautical miles from Nakhon Phanom, the target locations in STEEL TIGER present no deep penetration problems. All munition loads, ranging from the maximum gross weights of route interdiction to the comparatively low weight/drag indexed loads of armed escort can be delivered with ease."

Excluding combat damage attrition, the 606th ACS could realistically generate 1.5 sorties per aircraft per day within 30 days of combat initiation. This would support eight combat sorties per day. "It is optimistically predicted that this sortie rate will increase to 2.0 within 60 days of directed combat operation," Colonel Aderholt said. [5]

Both daylight and night operations were envisioned in the 606th ACS concept for integrating the T-28Ds into the STEEL TIGER interdiction program. It was suggested that daylight operation be directed by an airborne FAC, escorted by a flight of T-28s, or by the Road Watch Teams. Night operation was envisioned in conjunction with airborne FACs using detection equipment such as the "Starlight" scope. The FAC could be escorted by an armed flight of T-28s or he could initiate scramble procedures through the area control

aircraft. Flare support could be provided by a cargo flareship--"Lamplighter"--or the T-28s could use proven capability, illuminating their targets with externally carried multiple-flare dispensers. The T-28 was also well-suited as an armed escort for Pony Express helicopters, because of its wide spectrum of fire suppression ordnance, high degree of maneuverability and, in this configuration, compatible fuel endurance.[6/]

Earlier, on 28 December 1966, it had been suggested that the T-28Ds be fragged to provide escort for CAS and other special missions. These missions consisted primarily of infiltrations and exfiltrations by Pony Express helicopters of various teams into and out of the Laotian area of operations. The A-26As were being fragged on these missions (during daylight hours) and had not been required to expend any ordnance in the escort role thus far.[7/]

The A-26A time on station performing escort minimized the normal armed reconnaissance time, resulting in ordnance being expended on the nearest interdiction point en route to home base. To make maximum use of the A-26A capability in the interdiction role, it was considered of prime importance that all available A-26A sorties be conducted during the hours of darkness, with their primary mission being armed reconnaissance in the STEEL TIGER and BARREL ROLL areas. It was requested that the A-26s no longer be fragged on escort missions, and that the T-28s be utilized in this role.[8/]

Both of these proposals--commitment of the T-28s to an interdiction role, and escort for Pony Express missions--were in consonance with an earlier analysis made by Headquarters, 7AF. On 18 December, 7AF advised the Deputy Commander, 7AF/13AF:[9/]

> "Analysis of utilization data on T-28s at Nakhon Phanom indicates some unused capability which might be applied to the Laotian conflict. For the last four weeks T-28s averaged 42 hours per aircraft per month capability. In addition, the lessened proficiency of the aircrews is an unfavorable residual effect.
>
> "Request you evaluate the feasibility of approaching AMEMB Bangkok concerning application of a portion of this excess capability to Laotian targets. Proficiency of the aircrews will be maintained, providing a richer background as instructors for the Thai Air Force personnel."

Headquarters, 7AF, also advised the 606th ACS to provide current data on the T-28 sortie capability which could be applied to the effort in Laos.[10/] The 606th ACS replied that it could support the Pony Express requirements as soon as they were fragged. It could also provide six-to-eight VR/strike sorties per night in the STEEL TIGER area using flights of two T-28s with organic flare support. This rate could be expanded as pilot manning increased, and the RTAF became proficient in night intercept tactics.

Colonel Aderholt also advised that the 606th ACS could provide a limited C-123 flareship capability if required.[11/] He said:

> "The 606th ACS can provide combat ready crews and two C-123 flareship sorties per night to support the T-28 strike aircraft. C-123 flare aircraft would be particularly effective if employed with T-28s against traffic on Route 23. The C-123s would eliminate the requirement for Lamplighter support of T-28s in the STEEL TIGER area. C-123 flareship will allow the T-28s to carry larger ordnance load."

General Bond coordinated with the American Embassy in Bangkok regarding

the use of T-28s in Laos, and the Embassy concurred with the 7AF concept. Subsequent concurrence was received from Ambassador Sullivan in Vientiane. The Deputy Commander, 7AF/13AF, advised Headquarters 7AF: 12/

> "Recommend initial programming utilize no more than eight sorties per day with sortie duration of from 2.5 to 4 hours. Aircraft to be fragged in flights of two.
>
> "It is believed sortie rate may be increased when 606 ACS mission and manning becomes static. Current RTG support and uncertainty as to disposition of USAF helicopters mitigate against forecasting future operations based upon past performance. Favorable resolution of retention of our helicopter forces would greatly enhance this probability." (For additional information on helicopter forces, see "Lucky Tiger SAW Operations," Chapter II.)

On 9 January 1967, the 606th ACS began flying T-28D missions in STEEL TIGER. 13/ Having anticipated receipt of the frag on 8 January, Colonel Aderholt and his T-28 aircrews had rapidly prepared themselves for these missions. They were able to draw upon the experience of the A-26A Nimrods and the O-1F Nails in the STEEL TIGER area. Maps were made and the terrain was studied. Familiarization flights were made by the T-28D pilots by flying out with the Nails on VR missions. Although they had relatively short notice, the pilots were ready to go. 14/

The first missions were fragged during daylight hours. The aircraft flew in pairs, performing such missions as armed reconnaissance, search and rescue cover, Ranch Hand (defoliation aircraft) escort, and Pony Express escort. Strike results for the first week were 14 secondary fires, two

gun-positions damaged, six small arms gun-positions destroyed, one truck, one bridge, and one building destroyed, and one building damaged.[15]

T-28s Enter Night Program

In the T-28D operations over Laos, the 606th ACS began to phase-out day missions on hard targets in favor of armed night reconnaissance during the second week. The T-28s were considered to be an effective night weapons system in that the aircraft could provide its own flare support and still carry an adequate ordnance load. Darkness also provided the T-28 pilots an increased measure of safety. It would also provide more targets of opportunity since daytime operations of FACs and fighters had forced the enemy to operate at night.[16]

The T-28's entry into the Laotian environment much resembled that of its Big Eagle counterpart in June 1966. One A-26A was lost to enemy guns during its daylight familiarization period. On 17 January 1967, one day before phasing into the night program, the first Lucky Tiger T-28D was lost over Laos. This loss occurred when the pilot rolled off a target to come to the aid of a downed O-1 Nail pilot. Intense automatic weapons fire ripped the underside of the aircraft, penetrated to the cockpit and killed the pilot. The aircraft went straight in and burst into flames.[17]

At a weekly conference among Headquarters, 7AF/13AF representatives, CAS representatives, and the USAIRA, Vientiane, in mid-January, discussions centered around improving the capability for combatting infiltration through the Laos Panhandle. Considerable attention was focused on coordinated

air action against enemy truck movements and expanded roadwatch/ground reconnaissance efforts. At the conference it was agreed that in view of the high percentage of truck sightings which occurred at night, better nighttime air coverage was needed. In this regard, Ambassador Sullivan emphasized that the A-26s had been particularly effective. The T-28s would go far in providing the added weight which the night program required. 18/

The 606th ACS Commander and his operations personnel were continually working toward refinement of armament loads and strike tactics. On 24 January, Colonel Aderholt recommended to 7AF, that T-28D night-armed reconnaissance missions be flown as single sorties. He said: 19/

> "This will provide wider coverage and more effective harassment of the LOCs in the Delta/Echo areas of STEEL TIGER. Single aircraft sorties will provide a more efficient turn-around situation for both the armament and maintenance operations. Two ship operation over a target area requires at least minimum aircraft lighting for separation and creates an undesirable reference to ground fire. Suggest one hour plus 15-minute separation between TOTs to provide maximum extension of harassment time over LOC during hours of darkness."

It was further requested that 606th ACS-assigned pilots and navigators, other than T-28 aircrews, be authorized to fly in the rear cockpit during night missions. The existent manning and other operational commitments would not support two T-28D qualified pilots in each aircraft. Experience had proved the value of an augmented crew concept for night operations. Combat effectiveness was increased when a rear-seat pilot could assist in navigation, target search, and strike coordination. Flight safety was also

immeasurably increased with the rear-seat pilot monitoring the flight instruments, ordnance release altitudes, and target periphery for ground fire.[20]

There was one argument against the two-crew concept. This basically involved the unnecessary exposure of two crew members in a hostile environment. The 606th ACS officials, however, were of the opinion: "The increase in operational effectiveness is felt to outweigh the exposure of a second aircrew member. Sufficient volunteer line and staff crews are available."[21] One 606th T-28D pilot commented:[22]

> "Once we get to the target, the second man is invaluable. The pilot tends to get barrel vision when he comes in on a truck. The man in the rear looks out the side and picks up the ground fire. As they pull off the truck, he gets a much better view. We have found that it is the rear cockpit man who actually picks up the additional truck sightings during our passes. And, quite frankly, the more experience these people get in the back seat, the more effective they are."

The T-28 night-armed reconnaissance missions were fragged as single sortie missions effective 15 February. Headquarters, 7AF, advised that the single sorties would be flown with a separation of approximately one hour and 15 minutes between sorties. The aircraft would establish contact with Lamplighter prior to entering Laos and would maintain contact until departing Laos, providing immediate assistance to any T-28 which might encounter an emergency situation.[23]

Integration of A-26As and T-28Ds into the night interdiction system in Laos proved to be a successfully coordinated endeavor. The ramifications

resulting from employment of these two weapons systems in a program formerly assigned primarily to jet strike aircraft, and the factors bearing on their success, will be discussed later in this chapter and will be summed up in the epilogue.[24/]

Refinement of Armament Loads

One reason for the success of strike operations by these prop aircraft was the great deal of attention directed by the 606th ACS Commander and his officers to the refinement of armament loads, as well as tactics. In this regard, Colonel Aderholt requested on 29 January, from 7AF, that ordnance loads for the A-26As and T-28Ds "within certain parameters" be at the discretion of the 606th ACS Commander. He also requested that as much advance notice of frag changes be given "as humanly possible."[25/]

The 606th ACS Commander was subsequently given more latitude in the ordnance area. Selection of ordnance for specific missions was a process of evolution. Maj. David R. Williams, a T-28 pilot who had been deeply involved in 606th ACS operations, explained:[26/]

> "We did not want to discredit any type air munition until we had tried it. We did find that you cannot obtain maximum effectiveness by splitting your mission between interdiction and armed reconnaissance. It should be one or the other. If we conduct armed recce, we need certain types of ordnance, and if we are going to interdict, we feel we should be armed only with interdiction weapons.
>
> "Studying the first 30 or so trucks we destroyed, you can see that the trucks are being killed by guns first, and CBU. These two weapons are the most effective against trucks.

> "CBU will certainly stop a truck if you put it on him, but you have a problem if there is much wind drift. The guns if used properly are very dependable, particularly if you hit them head-on. Our procedure is to hit them head-on if possible--in the engine and cab--on the first pass. Even if they are not carrying POL, they are stopped, and you can work them over from there."

Preferred ordnance loads to insure maximum effectiveness for each type of mission being flown in the T-28s were announced by the 606th ACS on 5 February 1967. It was reiterated that the T-28, unlike the A-26, could not effectively accomplish interdiction and armed reconnaissance on the same flight, due to the limited store capability and the reduced time on station when carrying heavy ordnance. The preferred loads were as follows: 27/

- Night armed reconnaissance: 2XM47 (alternate 2XCBU-14 or 2XLAU-32), 2XCBU-14, 2XSUU-25.
- Day armed reconnaissance: 2XM47 (alternate 2XCBU-14 or 2XLAU-32) 2XCBU-14, 2XSUU-11.
- Escort: 2XM-47 (or 100-gallon tanks for extended mission) 2XCBU-14, 2XLAU-32.
- Armed FAC: 2XM-47, 2XLAU-32 with WP rockets, 2X100 gallon tanks (or empty station if extended range is not requested).
- Interdiction: 4XMK-81, 2XMK-82. For maximum effectiveness, missions carrying MK-81/82 type bombs should be fragged against specific targets (LOCs, Bridges, etc.); and at night, flare support should be provided by Lamplighter or Blind Bat.

As stated by Major Williams, truck kills had been obtained with a variety of ordnance; however, most consistent for "burners" and "exploders" had been guns and CBU. The 606th ACS did not claim trucks killed unless they

exploded or burned. To insure truck kills more reliably, the 606th ACS recommended that BLU-32B, BLU-11B or BLU-23, 500-pound napalm bombs (the short runway at Nakhon Phanom precluded heavier bomb loads), be fragged instead of MK-82s on T-28Ds. The BLU-10, 250-pound bomb was considered excellent for this operation, but none was in stock at Nakhon Phanom. Another recommendation was: [28]

> "SUU-11 mini-guns can be effective but only four to one ball and tracer ammo is available. Tracers mark aircraft location distinctly for ground gunners in night operations. Armor piercing ammo is available, SUU-11 mini-gun must be reserved for daylight use only."

Recommended for the A-26:

> "BLU-1B, BLU-27 or M-116 A-½ napalm should be exploited on external pylons for best results. For bomb bay load 120-pound frag clusters M-47 A1 WP and M-28 frag cluster incendiary bombs in combination should be used."

A proposal was also made that a Bullpup missile (AGM-12A) capability be procured for the Lucky Tiger T-28Ds. [29] This proposal was studied by operations officials at Headquarters, 7AF/13AF, and it was decided that the technical problems involved were too great to consider the AGM-12A weapons systems feasible for T-28D aircraft. [30]

On 21 February 1967, an A-26 pilot, Capt. James J. Whipps, submitted a proposal asking that a glass nose be obtained from England AFB, La., to configure one of the A-26s for a night reconnaissance mission. Captain Whipps' concept for the glass nose called for the aircraft to be equipped with a light amplifier device to aid in locating moving targets in Laos. [31]

A suggested ordnance load for this mission was MAU-63 racks with MK-24 flares and CBU-14s on the wing stations, with all internal stations loaded with AN-M47A4 PWP bombs. Captain Whipps said:[32]

> "With this load the crew can locate, identify and stop trucks, and with the AM-M47A4s they can either burn, or mark the target for other aircraft. It is emphasized that the primary mission for this aircraft is location and identification of targets, they may have to stop them with CBUs, but the business of destruction should be left to hard nose A-26s and T-28s."

The 606th ACS Commander felt that this proposal had definite merit and should be pursued. He pointed out that the glass nose reconnaissance packages were on hand at England AFB, and the design criteria called for the capability to exchange the glass nose for an eight-gun hard nose in four hours. The Commander also felt that the reconnaissance package could be used to advantage for occasional high priority photo requirements in areas of primary concern to units based at Nakhon Phanom.[33] Headquarters, 7AF/13AF, agreed, and directed action be taken to obtain this capability.[34]

Proposals for operational improvements from units in the field were given careful consideration at 7AF/13AF. If the capability existed to respond to a sound proposal, action was normally taken. By March, many of the 606th ACS proposals were bringing results.[35] For instance, permission to use napalm was given not long after it had been requested by the 606th ACS Commander.[36] Major Williams commented on its use:

> "We have high hopes for the napalm and really believe it might be a more successful truck killer than the

CBU. We began operations with napalm about a week ago, and unfortunately at the time we only had the 500 pounders. They make a real good fire and we got trucks with them. We have found that trucks without POL or explosives aboard are difficult to burn unless you hit them with napalm or from the side with guns. From the front or rear, you can make several passes and build no fire. We have now received some BLU-10s which are 250-lb napalm. They are extremely effective because of two properties we didn't have with the BLU-32. They are lighter which gives us more time on the target and they are a lower drag which gives us more maneuverability around the target. This allows us to retain them and be more selective on where and when we would like to use them. This weapon has a tremendous potential for us. Last night we found that the area of coverage on the BLU-10 is almost as great as the BLU-32. We are still looking for better weapons, but the combination of guns, CBU and the 250-lb. napalm are the most effective against trucks and possibly against truck parks."

Improved Night Capability

While the 606th ACS was daily working at improving its night program, a very high priority was placed by Headquarters, 7AF, on actions to improve night capability throughout the theater. It was considered imperative by Headquarters, 7AF, that C-123 flare capability be achieved immediately over Laos, and that the Starlight Scope should be expanded for use in all feasibly employable aircraft. 37/

A 7AF project officer was appointed to coordinate all actions at Nakhon Phanom to achieve a smoothly operating and coordinated night effort. It was directed that all action possible within resources at Nakhon Phanom and Headquarters, 7AF/13AF, be exhausted to solve tactics, procedural or logistics problems. The project officer was responsible for following up with responsible 7AF agencies to obtain priority action on any reasonable requirement needed to achieve a safe and effective night capability. 38/

In line with this increased emphasis on night capability, 7AF requested that the 606th ACS borrow a Starlight Scope from the 23d TASS and conduct an evaluation of the T-28D night VR capability. The purpose of this was to ascertain the comparative effectiveness of the T-28 versus the O-1F in the night VR role.[39]

Night VR operations in the STEEL TIGER area using a Starlight Scope in the T-28 were conducted on 15-19 February. Additionally, T-28D and A-26A aircraft operated with each O-1F Nail sortie, on 12-19 February, using the scope. Scope operations in the T-28D included scope-experienced O-1F pilots as well as T-28 pilots. With one exception, the T-28Ds carried normal fragged ordnance for "two plus twenty" to "two plus thirty" mission time. On the night of 18 February, tanks, flares and marking rockets were carried and "four plus forty-five" mission time was logged. The scope was considered marginally satisfactory in the T-28D, due to the following problem areas encountered:[40]

- Limited field of view forward and aft of wing. This factor restricted route following capability. Operating in orbit for point surveillance partially corrected this problem.
- Limited space inside canopy coupled with length of scope forced awkward operator position leading to extreme crew discomfort. Low speed canopy open operation was not satisfactory due to wind blast and noise which completely blanked out interphone and radio signals for both crew members.
- Eye fatigue on long sorties. This could be minimized by use of eye patch.

Advantages of the T-28D versus the O-1F in Starlight Scope VR were found

to be greater flare capability, longer loiter time, superior navigational equipment, and greater speed which allowed for broader area coverage in a single sortie. Limited navigational capability and short loiter time of the O-1F detracted from the effectiveness of the O-1F/T-28D/A-26A team effort. Other factors detracting from the O-1F operations with the scope were listed by the 606th ACS Commander: 41/

> "Rendezvous between O-1F and strike aircraft must be accomplished with strike aircraft high. Black O-1F with cupped navigational lights cannot be seen from level or below. It is highly desirable to have scope with a broader field of view. Translation of small field of view, i.e., single semi-concealed truck to broad field after flares are lit is frequently difficult. It is also desirable that the scope aircraft have a quantity of flares and marking ordnance."

Since a better platform than either the T-28D or the O-1F was needed for scope operations, the 606th ACS Commander and his operations personnel decided to test the scope operating from a UC-123. On 17 February, one C-123 sortie was flown using the scope and flares on the Udorn gunnery range. Scope operations were accomplished from the pilot position, side doors and from the forward floor hatch. Best results were obtained from the floor hatch position. 42/

The 606th ACS Commander reported that a locally fabricated scope mount allowed the prone observer in the C-123 to sweep from 20 degrees below horizon to vertical and approximately 60 degrees either side of the flight path. He said: 43/

> "Mounted scope eases operator fatigue on long flights.

> Compatibility of cruise speed between C-123/T-28/A-26 makes this combination extremely attractive. Procedures for coordinating flare drops over observed target checked satisfactorily over range in Thailand. Further evaluation in STEEL TIGER could be undertaken to refine techniques and procedures."

Other observations concerning the C-123 included: 44/

- A safety line should be used on the individual operating the scope.
- Blackout curtains should be used on the cargo compartment windows.
- Armor plating should be used under the stored flares.
- An absolute must was to have the aircraft underside painted flat black.
- The mount platform was extremely stable and drop accuracy was as expected.

Subsequently, a plan was developed whereby the C-123 aircraft and the T-28D aircraft would form a "Hunter-Killer" team over Laos at night. The use of the Starlight Scope was the key factor in this team effort, and could be exploited for complete surprise by utilizing a "one run and drop flare maneuver" by the C-123. 45/ This plan was submitted to 7AF, which not only approved the plan, but directed that the A-26A operation would also be combined with the C-123 in the BARREL ROLL area. 46/

Combat Operations Epilogue

This study pertained only to operations through 8 March 1967--one year from the date of Lucky Tiger activation at Nakhon Phanom. Additional data on COIN operations in Thailand and combat operations in Laos may be

found in special CHECO studies on air operations from Thailand. Historical coverage of Lucky Tiger operations will be provided on a continuing basis.

By 8 March 1967, the T-28Ds and A-26As of the 606th ACS operating in the STEEL TIGER and BARREL ROLL areas of Laos, and to a limited degree in North Vietnam, had thus far made an impressive contribution to the night interdiction program. New concepts for more effective application of 606th ACS resources in the night interdiction program were constantly being developed. 47/

Statistics as of 2 March showed that the 606th ACS had ten T-28s and ten A-26As on hand. From July 1966 to 28 February 1967, the A-26As had flown 2,004 sorties, with 62 weather cancellations and 174 maintenance cancellations. The sortie rate was 1.0 and the total time flown was 4,968 hours. Results as previously stated were spectacular. By 28 February, the A-26s had destroyed 275 trucks and damaged 246 more. They had also hit 1,223 truck parks resulting in 1,033 secondary explosions. Other results included 602 road cuts, 24 gun positions, 148 structures, 823 bivouac areas hit, 492 KBA. There were also 23 gun positions, 27 boats and 79 structures damaged. Twenty-five A-26s had received battle damage, and three had been lost to combat. One loss by accident was recorded. 48/

In operation less than two months, the T-28 night strike force has also been productive. The T-28s had flown 455 sorties, with no aborts recorded. Total flying time from 9 January to 2 March 1967, was 1,066 hours. Forty-two trucks had been destroyed and 68 damaged. Other results included 32 road

cuts, 7 gun positions destroyed and 5 damaged, 15 KBA, 65 secondary fires and 67 secondary explosions, 1 bivouac area damaged, 1 structure destroyed, and 1 damaged. Three T-28s had received battle damage, and 1 aircraft was lost to ground fire.[49]

Certain factors contributing to the success of night operations by these aircraft, i.e., flare capability, longer loiter time, proximity of Nakhon Phanom to the interdiction areas, heavy night truck movement, etc., have been discussed earlier in this study. What have not been discussed are the motivation factor and the composite operational posture at Nakhon Phanom.[50]

In March 1966, when operations at Nakhon Phanom began expanding, the Director of Operations at 7AF/13AF Headquarters recognized the requirement for a Tactical Unit Operations Center (TUOC) to support and coordinate the varied activities. The TUOC would coordinate mission planning as well as operations between airborne aircraft, TACC, Udorn, and USAIRA, Vientiane. He also recognized the probability of a longer range requirement for a Direct Air Support Center (DASC) at Nakhon Phanom to direct overall operations of TASS, Air Commando, SAR forces, and Pony Express. By March 1967, the control center was still a TUOC, but operations were still expanding.[51]

CINCPACAF, in October 1966, directed that the TUOC would be controlled by the senior tactical commander at Nakhon Phanom. Since the 606th ACS was under operational control of 7AF, the TUOC was assigned to the 606th ACS Commander.[52] Once operations became accelerated during the latter part of 1966 and early 1967, this arrangement proved highly productive. The composite force functioning under the TUOC included the 606th ACS resources, the

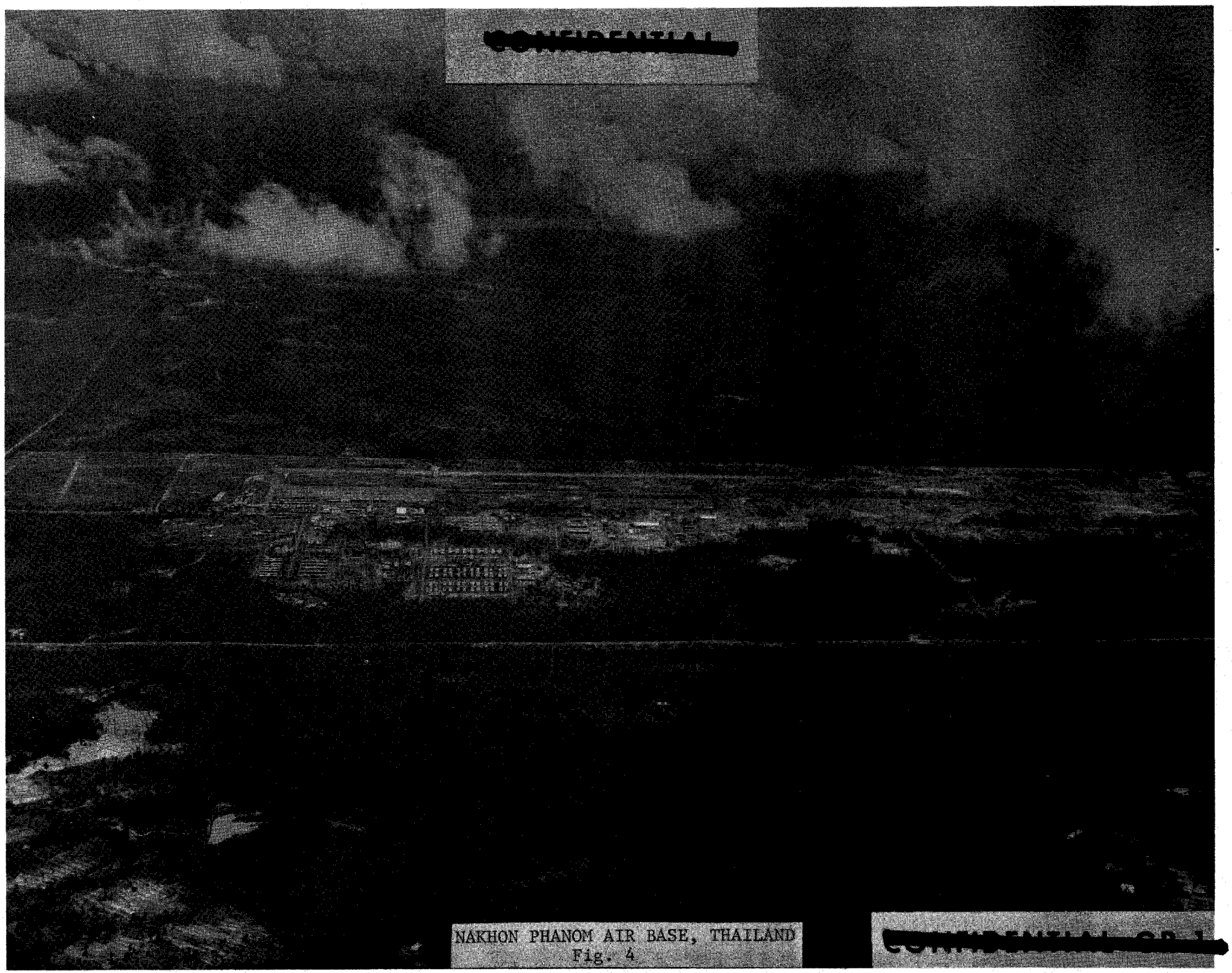
23d TASS O-1Fs, SAR forces and Pony Express. A central intelligence and operations capability within the TUOC tied these resources into a highly motivated entity.[53]

One pilot, Major Williams, made some very pertinent observations concerning the advantages of the composite operations from Nakhon Phanom:[54]

> "With these operations centered at Nakhon Phanom, we are able to get real time intelligence. By that I mean intelligence that may be only two or three hours old when the first briefing is done. The O-1F Nails are out there all day long, and they are able to check on the area in respect to truck parks--tracks on the road, dust on the trees and that sort of thing. They are also able to give us real time assessment of the condition of the choke points whether they are open or whether they have been closed. When we are briefed at 4:30 in the afternoon, some of the Nails are still airborne and on their way back in. The information they have for us is very timely."

Major Williams also pointed out the advantage of obtaining a good assessment of the weapons situation in the target areas from the Nail VR flights. "They pick up quite a bit of automatic and 37-mm weapons fire, and they are able to pinpoint those for us," he said. The Road Watch Teams were also an important part of the composite picture.[55] Major Williams commented on this:

> "During the last couple of weeks or so, the road watch teams have really come into their own as far as we are concerned. We have had highly accurate advance information from them such as how many and what time enemy trucks pass a certain location on a given route. This of course gives us an extremely good indication of the flow of traffic on that particular route. They also locate troop concentrations and storage areas that we can hit. The Nimrod (A-26) with his good load of ordnance is more effective against these.



NAKHON PHANOM AIR BASE, THAILAND
Fig. 4

> "With this combination of all of us being on one base and all working in the area, everything jells together. Our intelligence from all of these sources are brought together here in a central shop, so Nimrods or Zorros (T-28s) attending these briefings get important information gleaned from all of these sources. This allows us to make a firm decision on the best or most lucrative areas to cover on a particular mission."

All officers functioning within the composite force under the TUOC daily worked together on developing a more effective operations. Individual experiences were brought out for discussion and compared, and individual ideas for improvement were always considered. New and corrective actions were generated with little or no delay. Pilots, navigators, maintenance and support officers, and intelligence personnel could see and appreciate the results of their team effort. All of this provided for a higher motivation factor, a better application of resources, and the visible results obtained from the compact team effort. 56/

A structural change to the TUOC at Nakhon Phanom was directed in early March; however, the effect that it would have could not yet be determined. Headquarters, 7AF, advised on 5 March, that the increased activities in STEEL TIGER and the need for greater integration of effort between STEEL TIGER and TIGER HOUND generated a requirement for a more integrated organization. A STEEL TIGER Advon similar in character and function to the TIGER HOUND structure was developed by 7AF and sent to Nakhon Phanom to more or less direct 7AF operational control over all Nakhon Phanom based units. The 7AF Commander said: "The organization of this force will permit unit commanders at Nakhon Phanom to concentrate on their assigned mission rather than get their energies

diluted trying to cope with operational problems beyond their assigned missions." [57]

On a final note, operations were being expanded as the period covered by this report drew to an end. Headquarters, 7AF, requested that if at all possible, the 606th ACS should generate two additional C-123 sorties and two additional T-28D sorties over Laos. The 23d TASS was also requested to increase its O-1F operations to eight sorties per night. The message advised: "Coming monsoon season dictates that we move fast to capitalize on advantages accruing from Starlight Scope operations." [58]

A statement by the 606th ACS Commander to Lucky Tiger operations personnel on 4 March, reflected the spirit and intent with which Lucky Tiger operations were directed. He said: [59]

> "I cannot speak for the other commanders here at Nakhon Phanom, but I want it made clear that we are not going to just sit here at the base because the weather is bad out in the target areas. Our job here is to stop truck traffic--the movement of men and supplies, and if the weather here allows it, we go.
>
> "Senior officers will be at the TUOC at night. We are involved in the war at night, and I want you here to work with the pilots, to direct operations and make decisions. We need every degree of control, and I want the pilots informed about every facet of their mission.
>
> "Even in bad weather, we can work with the ABCCC, possibly divert to BARREL ROLL. We can harass the enemy with flares, even if we can't get down to strike. If the base is open, the mission is flown. I want this made very clear."

FOOTNOTES

CHAPTER I

(Documents as noted provided in one copy to AFCHO and in DTEC file copy.)

1. (S) Conclusion Drawn from Study of All Available Documents Re 606th ACS. (Hereafter cited: Study of Documents.)

2. (S) Operations Briefing, Hq 7AF/13AF, 2 Nov 66.

3. (S) Memo, DCHJUSMAG, subj: Memo of Understanding, N/D, Doc. 1.

4. (S) Msg, Hq 7AF/13AF to 13AF, DCTDO 02894, subj: Transfer of Det 6, 1st ACW, 2 Jun 66, Doc. 2.

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6. (S) Interview with Lt Col C. E. Ramsey, 7 Mar 67.

7. (S) Ibid; Ltr, AMEMB, USAIRA, to 7/13AF, subj: Personnel Support, 25 Jan 67, Doc. 3.

8. (S) Ibid.

9. (S) Ibid.

10. (S) Ltr, DCR, 7AF/13AF to 7AF, subj: Butterfly FACs, 11 Mar 67, Doc. 4.

11. (S) Ibid.

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14. (C) Msg, CINCPACAF to AIG 592, DOCP 35791, subj: Forty-seven Quick Movement Directive, 7 Jun 66, Doc. 5; Ltr, DO to 7AF, subj: Concept of Operations, A-26A A/C, 12 Jun 66, Doc. 6.

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20. (S) Wkly Activities Rpt, (25 Jun-1 Jul 66), 1 Jul 66, Doc. 7.

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28. (S) Big Eagle Debriefing by Col D. A. Curto, 6 Sep 66.

29. (S) Wkly Activity Rpt, (17-23 Sep 66), 23 Sep 66, Doc. 7.

30. (S) Ibid.

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37. (S) Msg, 7AF to CINCPACAF, DPL 73417, subj: AC-47 Aircraft, 5 Sep 66.

38. (S) Study--AC-47, by Project CHECO, Sep 66.

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41. (S) Msg, CINCPACAF to 7AF, DO 31450, subj: AC-47 Deployment, 25 Sep 66.

42. (S) Msg, USAIRA Vientiane to CINCPACAF, subj: AC-47s at NKP, 15 Oct 66.

43. (S) Msg, AMEMB Vientiane to CINCPACAF, subj: A-26As, 15 Oct 66.

44. (S) Msg, 7AF to CINCPACAF, 73668, Oct 66, subj: Big Eagle, 2 Oct 66, Doc. 10.

45. (S) Msg, AMEMB Vientiane to CINCPAC, subj: A-26s, 15 Oct 66.

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48. (C) Msg, AMEMB Vientiane to CINCPAC, Personal-Admiral Sharp fm Ambassador Sullivan, Oct 66, Doc. 12.

49. (S) Wkly Activity Rpt, (31 Oct-6 Nov 66), 7 Nov 66, Doc. 7.

50. (TS) Summary, Hq PACAF DTE, Air Operations SEA, Vol XXVIII, Nov 66.

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57. (S) Msg, 606 ACS to USAIRA Vientiane, ACS 1000 Dec 66, 6 Dec 66, Doc. 14.

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61. (S) Study of Documents.

62. (SNF) Ltr, Cdr, 606 ACS to Cdr, 13AF, subj: Proposal to Improve USAF Operations in SEA, 24 Dec 66, Doc. 15.

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FOOTNOTES

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11. (TS) Msg, Cdr 606 ACS to DCR, 7AF/13AF, TS FASTEL 1023, subj: T-28 Aircraft, 6 Jan 67.
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59. (S) TUOC Staff Mtg Notes, Statement of 606 ACS Cdr, 4 Mar 67.

GLOSSARY

AAA	Antiaircraft Artillery
ABCCC	Airborne Command Control Center
ACS	Air Commando Squadron
ACW	Air Commando Wing
ADC	Auto-Defense de Choc
AFAG	Air Force Advisory Group
AGE	Aerospace Ground Equipment
AIRA	Air Attache
AMEMB	American Embassy
API	Armor Piercing Incendiary
BDA	Bomb Damage Assessment
BR	Barrel Roll
CBU	Cluster Bomb Unit
CINCPACAF	Commander in Chief, Pacific Air Forces
COMUSMACV	Commander, U.S. Military Assistance Command, Vietnam
CSAF	Chief of Staff, Air Force
DASC	Direct Air Support Center
DOD	Department of Defense
FAC	Forward Air Controller
FAR	Forces Armee Royale
FM	Frequency Modulation
Frag	Fragmented Operations Order
GCI	Ground Controlled Intercept (Radar)
GP	General Purpose
IFF/SIF	Identification-Friend or Foe/Selective Identification Feature
IRAN	Inspection Repair As Necessary
JCS	Joint Chiefs of Staff
JUSMAG	Joint U.S. Military Advisory Group
KBA	Killed By Air
KIA	Killed In Action
LAU	Launching Mechanism
LF	Low Frequency
LOC	Line of Communication
mm	Millimeter

NVN	North Vietnam
PACAF	Pacific Air Forces
POL	Petroleum, Oil and Lubricants
PWP	Plasticized White Phosphorus
RLAF	Royal Laotian Air Force
RLG	Royal Laotian Government
RTAFB	Royal Thai Air Force Base
RWT	Road Watch Team
SAR	Search and Rescue
SSB	Single Side Band
TACAN	Tactical Air Navigation
TACC	Tactical Air Control Center
TASS	Tactical Air Support Squadron
TDY	Temporary Duty
TOT	Time on Target
TUOC	Tactical Unit Operations Center
UE	Unit Equipment
UHF	Ultra High Frequency
UMD	Unit Manning Document
USAIRA	USAF Air Attache
USSOUTHCOM	United States Southern Command
VHF	Very High Frequency
VR	Visual Reconnaissance
WP	White Phosphorus
WW II	World War II